

**REPORT OF THE UTILITIES DEPARTMENT  
OF  
THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA**

**DOCKET NO. 98-001-E  
CAROLINA POWER & LIGHT COMPANY**

**REPORT OF UTILITIES DEPARTMENT**  
**SOUTH CAROLINA PUBLIC SERVICE COMMISSION**  
**DOCKET NO. 98-001-E**  
**CAROLINA POWER & LIGHT COMPANY**

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# **REPORT OF UTILITIES DEPARTMENT**

## **SOUTH CAROLINA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 98-001-E**

### **CAROLINA POWER & LIGHT COMPANY REPORT OF FUEL ADJUSTMENT ANALYSIS**

#### **Scope of Examination**

The Commission's Utilities Department Staff analyzed the Company's procedures and practices pertaining to its fuel operation. Staff's examination consisted of the following:

- 1) Review of the Company's monthly fuel reports including:
  - a) Power Plant Performance Data Reports
  - b) Major Unit Outage Reports
  - c) Generation Mix
  - d) Generation Statistics
  - e) Retail Comparison of MWH Sales
  - f) Retail Comparison of Fuel Costs
- 2) On-site inspection of the Company's coal quality sampling technique.
- 3) Review of the Company's currently approved Adjustment for Fuel Costs Rider.
- 4) History of Cumulative Recovery Account.
- 5) Calculation of fuel costs to be included in the base rates for April 1998 through March 1999.

#### **REVIEW OF COMPANY'S MONTHLY FUEL REPORTS**

The Company files with this Commission monthly reports that include power plant performance data, major unit outages, generation mix, and other reports that provide the Staff pertinent data on which to evaluate the Company's fuel operating expenses.

Selected information from the Power Plant Performance Data Reports for nuclear and fossil plants is shown on Exhibit No. 1. It includes a listing of capacity factors and equivalent availability factors for each unit by month for the period and also includes the yearly capacity factors (1995-1997) and the lifetime (cumulative) capacity factors. These factors are expressed as a

**CAROLINA POWER & LIGHT COMPANY  
POWER PLANT PERFORMANCE DATA (%) REPORT**

CAPACITY FACTOR	MW RATING	LIFE TIME	YEAR 1995	YEAR 1996	YEAR 1997	JAN 1997	FEB 1997	MAR 1997	APR 1997	MAY 1997	JUN 1997	JUL 1997	AUG 1997	SEP 1997	OCT 1997	NOV 1997	DEC 1997
BRUNSWICK 1	767	52.0	86.0	84.7	102.0	103.4	100.9	104.6	98.7	108.5	105.4	105.2	108.3	103.8	102.5	72.4	110.0
BRUNSWICK 2	754	50.0	94.1	78.3	91.8	102.5	104.0	102.1	103.4	100.1	100.8	100.7	99.5	38.8	27.7	110.6	110.8
HARRIS1	860	78.9	78.9	93.6	78.5	99.6	96.0	101.9	12.3	0.0	64.6	74.3	89.0	98.6	101.2	102.0	102.1
ROBINSON 2	683	64.1	86.1	91.0	102.2	91.0	107.3	104.0	104.4	105.9	103.9	102.3	103.2	103.0	105.5	89.4	107.1
TOTAL NUCLEAR	3064	57.7	86.1	86.9	93.2	102.9	101.7	103.1	76.9	97.6	92.5	94.8	78.6	86.2	84.4	93.9	107.3

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AVAILABILITY FACTOR	MW RATING	JAN 1997	FEB 1997	MAR 1997	APR 1997	MAY 1997	JUN 1997	JUL 1997	AUG 1997	SEP 1997	OCT 1997	NOV 1997	DEC 1997
MAYO 1	745	93.5	99.6	99.3	99.7	82.7	98.4	98.6	96.5	90.2	88.9	88.8	100.0
ROXBORO 2	670	6.0	60.7	42.1	0.0	87.9	84.4	94.6	99.9	98.8	99.7	86.5	98.4
ROXBORO 3	707	89.0	99.3	98.9	96.0	86.9	99.7	91.1	96.7	99.8	82.3	93.6	97.5
ROXBORO 4	700	97.5	100.0	100.0	100.0	96.6	16.5	53.3	90.9	79.9	95.2	84.5	98.2
BRUNSWICK1	767	99.2	94.9	98.3	95.4	99.5	96.3	97.8	100.0	95.9	93.6	65.9	100.0
BRUNSWICK2	754	99.5	100.0	98.5	99.3	96.7	97.9	99.0	97.1	96.9	24.8	99.9	100.0
HARRIS 1	860	97.4	94.5	100.0	13.4	0.0	65.6	75.0	89.1	98.1	99.9	100.0	99.8
ROBINSON 2	683	99.8	100.0	97.9	98.2	100.0	99.4	99.5	100.0	99.3	100.0	84.7	100.0

**CAROLINA POWER & LIGHT COMPANY**  
**NUCLEAR UNIT OUTAGE REPORT**  
January 1, 1997 – December 31, 1997

<u>NO.</u>	<u>DATE OFF</u>	<u>DATE ON</u>	<u>HOURS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
<u>BRUNSWICK UNIT 1</u>				
1.	11/06/97	11/14/97	201.95/S	Unit was taken off-line for planned replacement of a leaking fuel cell. Other periodic, preventative, and corrective maintenance were also completed.
<u>BRUNSWICK UNIT 2</u>				
1.	09/13/97	10/22/97	942.87/S	Unit taken off-line for scheduled refueling, required inspections, planned modifications, and periodic, preventative, and corrective maintenance.
<u>HARRIS UNIT 1</u>				
1.	01/31/97	02/02/97	48.23/F	Feedwater isolation valve failed closed during testing. The solenoid for the failed isolation valve was replaced along with other repairs, and the unit was returned to service. Prior periodic testing in December 1996 showed proper operation.
2.	04/05/97	06/07/97	1526.67/S	Unit was taken off-line for scheduled refueling. Outage activities included refueling, routine required inspections, 10-Year in-service inspections, and periodic, preventative, and corrective maintenance.
3.	06/08/97	06/09/97	32.97/F	The unit tripped off-line during power ascension from refueling outage. Personnel were calibrating nuclear instrumentation which caused power range trip logic signals to trip unit. The instrumentation was reset as well as a failed breaker replaced, and unit returned to service.
4.	07/20/97	07/26/97	163.20/S	Unit was taken off-line to service problems with the Excitor.

TYPE\* F – Forced S – Scheduled

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CAROLINA POWER & LIGHT COMPANY  
NUCLEAR UNIT OUTAGE REPORT  
January 1, 1997 - December 31, 1997

<u>NO.</u>	<u>DATE OFF</u>	<u>DATE ON</u>	<u>HOURS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
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HARRIS UNIT 1

5.	08/29/97	08/31/97	53.05/F	The unit was placed in a limiting condition of operation (LCO) due to failure of the "A" Auxiliary Feedwater Pump. When the failed pump could not be restored within the time limits specified by the plant's technical specifications, the unit was required to be taken out of service for repairs.
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ROBINSON UNIT 2

1.	11/16/97	11/20/97	97.05/F	An automatic scram occurred due to a low water level in the "C" Steam Generator. This occurred when the pump shaft of one of the condensate pumps sheared off. The pump was repaired, required testing performed, and the unit was returned service.
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TYPE\* F- Forced      S- Scheduled

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**CAROLINA POWER & LIGHT COMPANY**  
**FOSSIL UNIT OUTAGE REPORT**  
**(100 HRS OR GREATER DURATION)**  
January 1, 1997 ~ December 31, 1997

<u>MONTH</u>	<u>UNIT</u>	<u>HRS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
JAN 97	Roxboro 2	699.65/S	The unit was removed from service on September 13, 1996, for the annual boiler inspection, major turbine overhaul, modifications, required testing, and periodic, preventative, and corrective maintenance. In addition, the precipitator was replaced, all fan internals and bearings were inspected, and new pulverizers and a low NOX firing system were installed. Also the economizer and platen superheater sections of the boiler were replaced, a number of other tube replacements in the boiler were installed, and eddy current testing of the feedwater heaters was completed.
FEB 97	None		
MAR 97	Roxboro 2	408.88/S	The unit was taken off-line on March 14, 1997, for the annual boiler inspection, overhaul of the stack emission control system and periodic, preventative and corrective maintenance.
APR 97	Roxboro 2	714.47/S	Prior outage continued through April.
MAY 97	None		
JUN 97	Roxboro 4	600.95/S	The unit was taken off-line on June 5, 1997, to perform the annual boiler inspection and periodic, preventative, and corrective maintenance. As the unit was being returned to service, a loss of auxiliary power occurred resulting in loss of DC power needed to supply lubrication to rotating equipment
JUL 97	Roxboro 4	325.32/S	Prior outage continued to July 14, 1997.
AUG 97	None		
SEPT 97	Roxboro 4	133.70/S	The unit was taken out of service on August 30, 1997, to replace the 4B main transformer.
TYPE* F -- Forced S - Scheduled			

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CAROLINA POWER & LIGHT COMPANY  
 FOSSIL UNIT OUTAGE REPORT  
 (100 HRS OR GREATER DURATION)  
 January 1, 1997 – December 31, 1997

<u>MONTH</u>	<u>UNIT</u>	<u>HRS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
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OCT 97	Roxboro 3	126.85/S	The unit was taken off-line on October 24, 1997, for the annual boiler inspection and for planned Maintenance.
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NOV 97	None		
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DEC 97	None		
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TYPE\* F – Forced S – Scheduled



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**CAROLINA POWER & LIGHT COMPANY**

**GENERATION MIX**

**JANUARY 1, 1997 - DECEMBER 31, 1997**

MONTH	FOSSIL (MWH)	%	NUCLEAR (MWH)	%	HYDRO (MWH)	%	TOTAL (MWH)
JANUARY	2,168,557	51%	2,029,438	47%	89,740	2%	4,287,735
FEBRUARY	1,826,660	49%	1,813,059	49%	90,015	2%	3,729,734
MARCH	1,416,834	39%	2,029,913	57%	138,462	4%	3,585,209
APRIL	1,802,686	53%	1,478,598	44%	96,706	3%	3,377,990
MAY	1,932,217	55%	1,495,628	43%	84,560	2%	3,512,405
JUNE	2,162,564	54%	1,768,655	44%	72,184	2%	4,003,403
JULY	2,639,401	58%	1,869,996	41%	50,434	1%	4,559,831
AUGUST	2,541,365	56%	1,961,907	43%	26,034	1%	4,529,306
SEPTEMBER	2,337,728	58%	1,658,811	41%	28,854	1%	4,025,393
OCTOBER	2,303,801	57%	1,685,613	42%	33,189	1%	4,022,603
NOVEMBER	2,193,269	55%	1,785,997	44%	41,463	1%	4,020,729
DECEMBER	2,409,424	53%	2,111,977	46%	47,352	1%	4,568,753
<b>TOTAL</b>	<b>25,734,506</b>	<b>53%</b>	<b>21,689,592</b>	<b>45%</b>	<b>798,993</b>	<b>2%</b>	<b>48,223,091</b>

**CAROLINA POWER & LIGHT COMPANY**

**GENERATION STATISTICS OF CP&L PLANTS**

**JANUARY 1, 1997 - DECEMBER 31, 1997**

<u>PLANT</u>	<u>TYPE FUEL</u>	<u>AVERAGE FUEL COST (CENTS/KWH*)</u>	<u>GENERATION (MWH)</u>
Harris	Nuclear	0.46	4,946,444
Robinson 2	Nuclear	0.43	6,197,588
Brunswick 1	Nuclear	0.51	5,600,134
Brunswick 2	Nuclear	0.52	4,945,427
Robinson 1	Coal	1.46	742,413
Weatherspoon	Coal	1.93	585,451
Asheville	Coal	1.43	2,155,384
Roxboro	Coal	1.58	13,063,345
Sutton	Coal	1.89	2,028,626
Cape Fear	Coal	1.94	1,718,343
Mayo	Coal	1.87	3,828,740
Lee	Coal	2.15	1,423,243

(\*) The average fuel costs for coal-fired plants include oil cost for start-up and flame stabilization.

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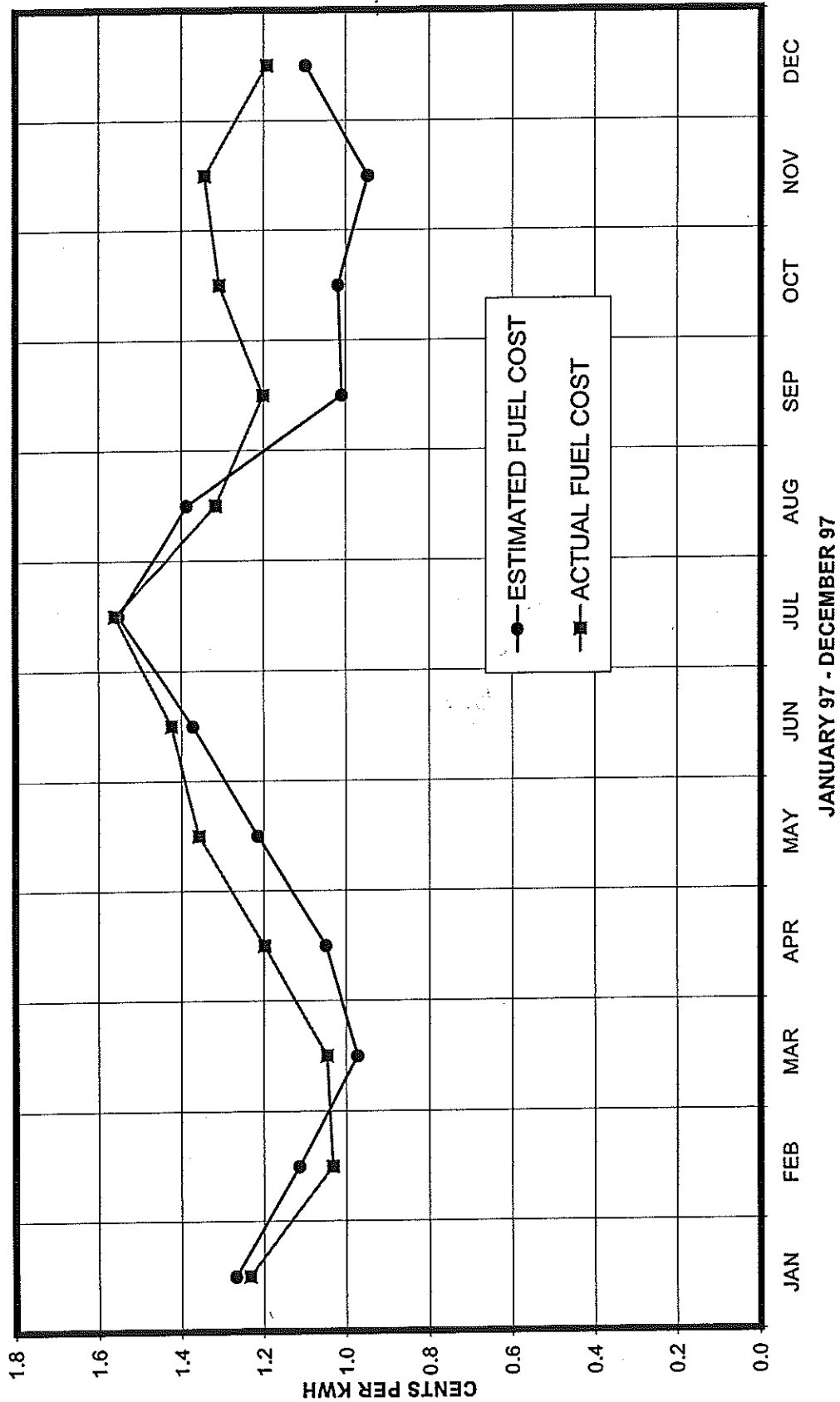
CAROLINA POWER & LIGHT COMPANY  
SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL ENERGY SALES FOR 1997

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
[1] ESTIMATED SALES [MWH]	605,943	582,103	569,134	494,107	524,152	587,008	652,184	654,817	664,016	542,427	533,258	576,210	6,985,359
[2] ACTUAL SALES [MWH]	565,940	574,002	481,831	499,331	501,311	538,993	630,780	645,886	618,000	545,824	502,120	594,986	6,699,004
[3] AMOUNT DIFFERENCE [1]-[2]	40,003	8,101	87,303	-5,224	22,841	48,015	21,404	8,931	46,016	-3,397	31,138	-18,776	286,355
[4] PERCENT DIFFERENCE [3]/[2]	7.1%	1.4%	18.1%	-1.0%	4.6%	8.9%	3.4%	1.4%	7.4%	-0.6%	6.2%	-3.2%	4.3%

CAROLINA POWER & LIGHT COMPANY  
 SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL FUEL COST FOR 1997

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
[1] ORIGINAL PROJECTION	1.267	1.113	0.973	1.049	1.214	1.372	1.553	1.387	1.010	1.019	0.948	1.098
[2] ACTUAL EXPERIENCE	1.234	1.033	1.047	1.198	1.357	1.425	1.561	1.317	1.201	1.308	1.344	1.193
[3] AMOUNT IN BASE	1.340	1.340	1.340	1.122	1.122	1.122	1.122	1.122	1.122	1.122	1.122	1.122
[4] VARIANCE FROM ACTUAL [1-2]/[2]	2.7%	7.7%	-7.1%	-12.4%	-10.5%	-3.7%	-0.5%	5.3%	-15.9%	-22.1%	-29.5%	-8.0%

CAROLINA POWER & LIGHT COMPANY  
 ESTIMATED TO ACTUAL-FUEL COST



RIDER NO. 39Q  
ADJUSTMENT FOR FUEL COSTS

APPLICABILITY

This adjustment is applicable to and is a part of the Utility's South Carolina retail electric rate schedules.

The Public Service Commission has determined that the costs of fuel in an amount to the nearest one-thousandth of a cent, as determined by the following formula, will be included in the base rates to the extent determined reasonable and proper by the Commission:

$$F = \frac{E}{S} + \frac{G}{S_1}$$

Where:

F = Fuel cost per kilowatt-hour included in base rate, rounded to the nearest one-thousandth of a cent.

E = Total projected system fuel costs:

- (A) Fuel consumed in the Utility's own plants and the Utility's share of fuel consumed in jointly owned or leased plants. The cost of fossil fuel shall include no items other than those listed in Account 151 of the Commission's Uniform System of Accounts for Public Utilities and Licensees. The cost of nuclear fuel shall be that as shown in Account 518 excluding rental payments on leased nuclear fuel and except that, if Account 518 also contains any expense for fossil fuel which has already been included in the cost of fossil fuel, it shall be deducted from this account.

Plus

- (B) Purchased power fuel costs such as those incurred in unit power and Limited Term power purchases where the fuel costs associated with energy purchased are identifiable and are identified in the billing statement.

Plus

- (C) Interchange power fuel costs such as Short Term, Economy, and other where the energy is purchased on economic dispatch basis.

Energy receipts that do not involve money payments such as Diversity energy and payback of storage energy are not defined as purchased or interchange power relative to this fuel calculation.

Minus

- (D) The cost of fuel recovered through intersystem sales including the fuel costs related to economy energy sales and other energy sold on an economic dispatch basis.

Energy deliveries that do not involve billing transactions such as Diversity energy and payback of storage are not defined as sales relative to this fuel calculation.

S = Projected system kilowatt-hour sales excluding any intersystem sales.

G = Cumulative difference between jurisdictional fuel revenues billed and fuel expenses at the end of the month preceding the projected period utilized in E and S.

S<sub>1</sub> = Projected jurisdictional kilowatt-hour sales for the period covered by the fuel costs included in E.

The appropriate revenue-related tax factor is to be included in these calculations.

The fuel cost (F) as determined by Public Service Commission of South Carolina is 1.122 cents per kilowatt-hour, which shall remain in effect until superseded by a subsequent Commission order.

Supersedes Rider No. 39P

Effective for bills rendered on and after April 1, 1997

RIDER-39Q

**CAROLINA POWER & LIGHT COMPANY**

**HISTORY OF CUMULATIVE RECOVERY ACCOUNT**

<u>PERIOD ENDING</u>	<u>OVER (UNDER) \$</u>
March 1979 – Automatic Fuel Adjustment in Effect	
December 1979	1,104,730
September 1980	(12,000,131)
March 1981	( 4,060,364)
August 1981	(12,113,832)
March 1982	( 935,412)
September 1982	( 6,881,796)
March 1983	( 2,259,114)
September 1983	( 3,264,694)
March 1984	109,270
September 1984	2,172,859
March 1985	( 2,317,008)
September 1985	745,913
March 1986	1,972,280
September 1986	( 696,805)
March 1987	2,408,354
September 1987	3,310,059
March 1988	( 3,964,888)
September 1988	( 5,737,541)
March 1989	( 8,125,496)
September 1989	( 5,875,641)
March 1990	( 9,311,149)
September 1990	( 658,614)
March 1991	1,403,023
September 1991	4,661,988
March 1992	5,201,112
September 1992	( 6,712,920)
March 1993	( 9,563,180)
September 1993	0*
March 1994	( 1,010,684)
September 1994	1,975,939
March 1995	7,408,161
September 1995	2,011,489
December 1996	186,139
December 1997	( 6,212,396)

\*Eliminated \$14,011,263 per Commission Order No. 93-865

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**CAROLINA POWER & LIGHT COMPANY**

**PROJECTIONS OF THE CUMULATIVE RECOVERY ACCOUNT**  
**FOR THE TWELVE MONTH PERIOD ENDING**  
**MARCH 1999**

	FUEL BASE	PROJECTED CUMULATIVE OVER/(UNDER) RECOVERY (\$)
	1.110	(13,814,954)
	1.120	(13,097,142)
COMPANY PROPOSED	1.122	(12,953,580)
	1.125	(12,738,237)
	1.150	(10,943,709)
	1.200	(7,354,652)
	1.250	(3,765,596)
	1.300	(176,539)
ZERO UNDER	1.302	(32,977)
ZERO OVER	1.303	38,804
	1.325	1,617,989
	1.350	3,412,518
	1.375	5,207,046
	1.400	7,001,574
	1.500	14,179,687